Liver Cancer

- Death rates for all cancers combined and for most cancer sites continue to decline for men and women of all major racial and ethnic groups
- Deaths from liver cancer increased at the highest rate of all cancer sites
- Liver cancer incidence rates had the second highest increase
- African American and Hispanic men had the lowest median age at death (60 and 62 years, respectively) and the highest average person-years of life lost per death (21 and 20 years, respectively) from liver cancer.


CDC, Cancer, online March 2016
Conceptual Model to Reduce Liver Cancer Mortality

- Hep B
- Hep C
- Alcohol
- NASH

- Hep B vaccination
- Screening for hep B and C
- Treatment for hep B and C
- Treatment for alcohol
- Treatment for diabetes, obesity?

- Cirrhosis
- Chronic hep B

- Screening for liver cancer
- Treatment for hep B (and C)

- Liver Cancer Incidence

- Treatment for liver cancer
- Clinical trials

- Liver Cancer Mortality
Liver Cancer Incidence, Men 1998-2002

Miller 2008; California Cancer Registries 2008
Hepatitis B and Asians

- 2.2 million Americans with chronic hepatitis B
  - Half are Asian Americans
- Asian Americans are fastest growing U.S. racial group.
  - 2/3 are immigrant and 37% are limited English proficient
- USPSTF recommends hep B screening among immigrants from endemic areas
  - Chronic hep B rates among Asian Americans ~10-15%
    - 1/3 never had hep B screening test
Community-Based Interventions to Promote Hepatitis B Testing

Liver Cancer Control for Asian Americans
NCI P01CA109091-04A1
# Project Comparisons

<table>
<thead>
<tr>
<th></th>
<th>Project 1</th>
<th>Project 2</th>
<th>Project 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Population:</strong></td>
<td>Vietnamese</td>
<td>Hmong</td>
<td>Korean</td>
</tr>
<tr>
<td><strong>Ethnic Group</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>Age</strong></td>
<td>18-64</td>
<td>18-64</td>
<td>18-64</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td>Male, Female</td>
<td>Male, Female</td>
<td>Male, Female</td>
</tr>
<tr>
<td><strong>Geographic Area</strong></td>
<td>Northern California, Wash DC area</td>
<td>Greater Sacramento Area</td>
<td>Los Angeles</td>
</tr>
<tr>
<td><strong>Outcome:</strong></td>
<td>Serological testing for HBV</td>
<td>Serological testing for HBV</td>
<td>Serological testing for HBV</td>
</tr>
<tr>
<td><strong>Definitions</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Study Design</strong></td>
<td>Quasi-experimental</td>
<td>Individual RCT</td>
<td>Group RCT</td>
</tr>
<tr>
<td><strong>Intervention</strong></td>
<td>Media</td>
<td>Lay Health Worker</td>
<td>Church-based</td>
</tr>
</tbody>
</table>
Promoting Hepatitis B Screening for Vietnamese American Adults

- Raise awareness among Vietnamese Americans in Northern California about hepatitis B and hepatitis-B-related liver cancer.

- Increase rates of hepatitis B screening among Northern California Vietnamese ages 18 and older through a Media Education campaign.
Pre-Intervention Survey

Media Campaign Intervention
Northern California

Control
Washington, D.C., Virginia, Maryland

Post-Intervention Survey
3.25 years of Media Education (ME) Campaign:

- Print Media
  - 13,000 booklets
  - 8,000 pamphlets
  - 10 Newspaper ads
  - Newspaper articles
  - 8,000 Calendars, 4,000 info-cards, postcards
- Electronic Media
  - 23 Radio and 10 television ads
  - Videos
  - Internet
- Linkage to low-cost or free screening programs, county clinics
Logo and Pamphlet
Website

Home

Hepatitis B is the most common serious liver infection in the world. Hepatitis B can cause cirrhosis (scarring), liver failure, liver cancer, and even death. One out of seven Vietnamese Americans have chronic hepatitis B infection, and the rate of liver cancer among Vietnamese American men is the highest of any ethnic group.

The Viet Hep B Free Project is dedicated to raising awareness.

Testing

Why Do I Need to be Tested for Hepatitis B?
How Do I Know What the Test Results Mean?
Where Do I Go to Get Tested for Hepatitis B?
Pre- and Post-Intervention Surveys

- Pre-Intervention Survey N (response rate)
  - Intervention 871 (25.8%)
  - Control 833 (29.3%)
- Post-Intervention Survey
  - Intervention 857 (29.3%)
  - Control 809 (23.1%)
Media Exposure

• Exposure to hepatitis B-related newspaper articles or ads increased in the intervention but not control community.

• Both communities reported increases in exposure to hepatitis B-related pamphlets, booklets, radio and television advertisements, and websites.
Had Hepatitis B Screening (%)

 Intervention ∆ < 0.001
 Control ∆ < 0.001
 Intervention vs. Control ∆ 0.9
## Multivariate Analyses: Had Hep B Screening

<table>
<thead>
<tr>
<th>Intervention Term</th>
<th>Estimate and p-value or Odds Ratio (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intervention Term</td>
<td>Est = -0.150 ± 0.163; p-value 0.356</td>
</tr>
<tr>
<td>Has health insurance</td>
<td>1.37 (1.10, 1.71)</td>
</tr>
<tr>
<td>Has family of hepatitis B</td>
<td>1.85 (1.46, 2.33)</td>
</tr>
<tr>
<td>Media exposure (each additional element)</td>
<td>1.26 (1.21, 1.31)</td>
</tr>
</tbody>
</table>

Adjusted for age, sex, marital status, length of US residency, Vietnamese language fluency, household income, having a regular doctor, doctor’s ethnicity
Health Within Reach: Efficacy of Multi-Lingual Mobile Applications to Promote Patient-Provider Communication among Asian Americans

Tung Nguyen, Mandana Khalili, Janice Tsoh, Arcadi Kolchak, Lauren Goldman, Judith Walsh, Ginny Gildengorin, Ching Wong, Elaine Chan, Ivy Lau, Hy Lam, Hoan Bui, Michael Sharp

*Patient-Centered Outcomes Research Institute (PCORI) AD-12-11-4615*
Aim 1

• Develop English, Cantonese, Mandarin, and Vietnamese interactive patient education video (Video Doctor) and Provider Alert to increase hepatitis B and C screening among Asian American patients.
Health Within Reach Team

- Researchers: internists, hepatologist, psychologist
- Bilingual and bicultural research associates
- Stakeholders:
  - San Francisco Hep B Free
  - Hepatitis B Quality Improvement Collaborative of the UCSF CTSI’s Community Engagement & Health Policy Program
  - Asian American Patient Advisory Councils at UCSF and ZSFG
• Focus groups
  • Community members and patients to develop topics
  • Clinic staff to obtain buy-in and understand clinic logistics
• Physician interviews to understand their points of view
• Patient Advisory Councils:
  • Barriers and responses
  • Application look and feel (buttons, fonts, colors, flow)
  • Video look and feel
  • Pilot test
• Patients: pilot test of application
Stakeholder Input
A simple blood test that uses a small amount of blood can tell if you have hepatitis B. Have you had a hepatitis B test?

- Yes
- No
- Not Sure

Would you like to know some tips on how to talk to your doctor about hepatitis B?

- Yes
- No
- Not Sure
Video Responses and Provider Alert

Hepatitis B and C

There are effective medicines to CURE hepatitis C

**FOR THE PATIENT**

**FOR THE DOCTOR/NURSE PRACTITIONER**

- Discuss your hepatitis B test results with your doctor.
- Ask your doctor for a hepatitis C test.

**Your current situation that needs attention:**

- Hepatitis B: You stated that you have been tested for this. If you are not sure, ask your doctor for the hepatitis B test.
- Hepatitis C: You may be at risk for this. You should get tested for hepatitis C.

**Your just watched videos that addressed:**

- Hepatitis B: transmission, symptoms, outcomes, screening, and your questions.
- Hepatitis C: transmission, symptoms, outcomes, and screening, and your questions.
- Whether hepatitis C is a serious disease.
- Whether you may have hepatitis C.
- Whether anything can be done about hepatitis C.
- Whether other people avoid those who have hepatitis C.

If you still have questions, please discuss them with your doctor.
Control App: Nutrition, Physical Activity, and Healthy Weight

Based on what you entered and the recommendations for Asians, your weight is in the Healthy Range (21.5 BMI). Your healthy weight range is 107.8 lbs - 133.4 lbs.

Dựa trên những con số mà bạn đã nhận vào và theo đề nghị cho người Châu Á, thì cân nặng của bạn là nằm trong Khơng báo phi (43.3 BMI). Khơng cân nặng Khơng mạnh của bạn là từ 56.8 đến 70.3 kg.
Aim 2

- Evaluate the efficacy of the Video Doctor + Provider Alert intervention + Provider Panel Notification vs. Provider Panel Notification to increase hepatitis B screening in 2 healthcare systems (UCSF, ZSFG) through a cluster randomized controlled trial (RCT)
Cluster Randomized Trial

- Randomization: Primary Care Physician (PCP)
  - Hepatitis: 54 PCPs and patients
  - Nutrition & Physical Activity: 42 PCPs and patients
- PCPs in both arms received list of patients not screened for hepatitis B every 6 months (Provider Panel Notification).
- Prior to PCP visit, both group of patients:
  - Used assigned Video Doctor (iPad) application.
  - Received 2 copies of bilingual printout summarizing the assigned topics and tailored recommendations (Provider Alert) and asked to give 1 copy to PCP.
Patient Eligibility

- Asian American
- Age 18+
- Speak English, Cantonese, Mandarin, or Vietnamese
- Clinic patient (visit within 3 years)
- No hepatitis B screening (surface antigen) test in electronic record.
Measurements and Outcomes

- Pre-intervention survey
- Immediate post-visit survey
- Post-intervention survey at 3 months
- Electronic health record documentation of hepatitis B and C screening at 3-month post-intervention
### RCT Participants Characteristics

<table>
<thead>
<tr>
<th></th>
<th>Hepatitis (n = 182)</th>
<th>Nutrition &amp; Physical Activity (n = 118)</th>
<th>Total (n = 300)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UCSF, %</td>
<td>59.3</td>
<td>60.2</td>
<td>59.7</td>
</tr>
<tr>
<td>Mean age in years (SD)</td>
<td>59.4 (16.6)</td>
<td>59.0 (17.3)</td>
<td>59.3 (16.8)</td>
</tr>
<tr>
<td>Female, %</td>
<td>58.2</td>
<td>65.3</td>
<td>61.0</td>
</tr>
<tr>
<td>Married/Partner, %</td>
<td>61.5</td>
<td>58.1</td>
<td>60.2</td>
</tr>
<tr>
<td>High school or less education, %</td>
<td>36.3</td>
<td>30.5</td>
<td>34.0</td>
</tr>
<tr>
<td>Annual income &lt; $20,000, %</td>
<td>39.0</td>
<td>38.2</td>
<td>38.7</td>
</tr>
<tr>
<td>Speak English so-so/poorly/not at all, %</td>
<td>44.0</td>
<td>38.2</td>
<td>41.7</td>
</tr>
<tr>
<td>U.S. born, %</td>
<td>17.6</td>
<td>16.9</td>
<td>17.3</td>
</tr>
<tr>
<td>Excellent/Very good self-rated health, %</td>
<td>29.1</td>
<td>38.1</td>
<td>28.7</td>
</tr>
</tbody>
</table>
Post-Visit Survey Results: Application and Printout

- Gave printout to doctor:
  - 59.9% (Hepatitis) 53.4% (NPA)

- Printout somewhat/very helpful to talk with doctor:
  - 75.3% (Hepatitis) 69.9% (NPA)

- Liked application:
  - 81.6% (Hepatitis) 76.9% (NPA)
Post-Visit Survey Results: Discussed Topic at Visit

- Hep B: 78.1%
- Hep C: 69.2%
- Nutrition: 57.6%
- Physical Activity: 64.4%
- Weight: 61.0%

All p < 0.002
Post-Visit Survey Results: Hep B and C Testing

- Asked doctor for hep B test: 68.0%
- Asked doctor for hep C test: 61.3%
- Doctor recommended hep B test: 58.8%
- Doctor recommended hep C test: 42.5%

All p < 0.001
Conclusions

• Mobile technology is a great way to tailor health interventions for Asian Americans.

• When developed with stakeholder input, mobile health applications can be used easily, even by older, non-English speaking Asian Americans.

• Mobile health application may be effective in improving patient-provider communication and healthy behaviors among Asian Americans.
Conceptual Model to Reduce Liver Cancer Mortality

- Hep B vaccination
- Screening for hep B and C
- Treatment for hep B and C
- Treatment for alcohol
- Treatment for diabetes, obesity?
- Cirrhosis
- Chronic hep B
- Screening for liver cancer
- Treatment for hep B (and C)
- Treatment for liver cancer
- Clinical trials
- Liver Cancer Mortality
San Francisco Cancer Initiative (SFCAN)

- Population-based effort to reduce the cancer burden with focus on disparities in incidence and outcome
- Using innovative science and new technologies including “precision population health” and “Big Data”
- Based on knowledge of needs of San Francisco residents.
- Multilevel—genes to society view of the determinants of cancer.
- Transdisciplinary approach with teams, community partners and policy leaders.
<table>
<thead>
<tr>
<th>Focus Areas:</th>
<th>In San Francisco, the five types of cancer which account for almost half of all cases are also the ones we can affect with known interventions, screening, and education.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast</td>
<td></td>
</tr>
<tr>
<td>Colorectal</td>
<td></td>
</tr>
<tr>
<td>Liver</td>
<td></td>
</tr>
<tr>
<td>Prostate</td>
<td></td>
</tr>
<tr>
<td>Tobacco Caused</td>
<td></td>
</tr>
</tbody>
</table>
SF CAN seeks to reduce new liver cancer cases and liver cancer deaths in San Francisco by 50 percent.

We will do this by reducing the impact of viral hepatitis. We will promote vaccination against hepatitis B, safe sex and clean-needle use, earlier detection of hepatitis B and C with screening blood tests, better monitoring and treatment for people infected with those diseases, and access to care for liver cancer patients.

In San Francisco, liver cancer is the 9th most common cancer and the 5th most deadly. Men develop liver cancer at more than double the rate of women. Asian Americans bear the brunt of this disease, but the past 20 years have brought increases in liver cancer in African Americans and Latinos.

Most liver cancers in the U.S. occur in people with cirrhosis (liver scarring), typically from chronic hepatitis B and C infection or heavy alcohol use. People with hepatitis B can also get liver cancer without having cirrhosis. San Francisco is no different.

Hepatitis B (HBV) is the primary cause of liver cancer. It can be transmitted by sexual contact, needle use, and during birth from mothers who are chronic carriers.
**Logic Model**

**Partners**
- UCSF HDFCCC
- SF Department of Public Health
- Healthcare Organizations
  - Kaiser Permanente
  - CPMC/Sutter
  - VA Hospital
  - Northeast Medical Services
  - Chinese Hospital
  - UCSF
  - ZSFG/CHN
- Community Organizations
  - Project Inform
  - SF-Hep B Free

**Activity**
- Analyze current policy and policy needs at city, state and federal levels
- Hepatitis C Virus (HCV) Elimination Initiative: create website, institute monthly planning process, produce strategic plan & budget
- Develop healthcare provider education interventions for Hepatitis B Virus (HBV) & HCV management
- Create HBV phone line navigation program in English & Chinese
- Support expanded hours for liver cancer screening at ZSFG
- Educate oncologists and hepatologists on appropriate liver cancer treatment and liver disease care
- Increase clinical research coordinator support for liver cancer treatment trials at ZSFG
- Position paper and strategy
- Strategy implementation
- Hepatitis C Virus (HCV) Elimination partnerships, website, strategic plan
- Interventions to increase provider education on HBV and HCV
- HBV phone line navigation program
  - Language appropriate HBV educational materials
- Increase liver cancer screening capacity at ZSFG
- Quality improvement for hep B and C patients
- Increased liver cancer treatment trials recruitment

**Output**
- Increase liver cancer screening capacity at ZSFG
- Quality improvement for hep B and C patients
- Increased liver cancer treatment trials recruitment

**Immediate Outcomes (1-3 years)**
- Policy changes at city & state level that support screening/vaccination/treatment for HBV/HCV liver disease/liver cancer
- Screening & treatment referral programs for HCV
  - Increase provider capacity to manage HCV
- Providers better informed and provide appropriate care to HBV & HCV patients and those at risk
- Those at risk for or have HBV better informed to discuss care and have enhanced access to care
- More people screened for liver cancer
- Earlier detection of liver cancer
- State of the art care for liver cancer for all patients

**Intermediate Outcomes (3-5 years)**
- Higher HBV vaccination, appropriate treatment, and cure rates
- Higher HBV screening, appropriate treatment, and cure rates
- Higher HCV screening, appropriate treatment, and cure rates
- Higher HBV vaccination, screening and appropriate treatment rates
- Those at risk for or have HBV better informed to discuss care and have enhanced access to care
- Those at risk for or have HBV better informed to discuss care and have enhanced access to care
- More people screened for liver cancer
- State of the art care for liver cancer for all patients
- Elimination of liver cancer disparities

**Impact (5+ years)**
- Eliminate HBV infection
  - HBV viral suppression
  - Eliminate HCV
- Lower incidence of liver cancer
- Better survival for liver cancer patients
- Elimination of liver cancer disparities
- State of the art care for liver cancer for all patients
Thank you!

Tung.Nguyen@ucsf.edu